Examining the Benefits of Self-Affirmation Beliefs for Coping with Self-Threat

THESIS

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By

Joselle Carrillo

The Ohio State University

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Research Distinction Examination Committee:

Dr. Kentaro Fujita, Advisor

Dr. Steven Spencer

Abstract

Self-affirmation—the act of reflecting on a source of self-worth to restore one's self-integrity—can help people cope with self-threats in a variety of domains, such as health (Reed & Aspinwall, 1998; Sherman & Cohen, 2000) and academics (Sherman et al., 2013). Recent research demonstrates that people recognize the benefits of self-affirmation (Reeves et al., 2020). The present work aims to extend past research by examining whether people's beliefs about self-affirmation can buffer them from the negative effects of a current self-threat. The present study (N = 240) specifically examined the self-threat of social exclusion. Participants completed an assessment that measured their beliefs about self-affirmation (Reeves et al., 2020). This assessment presented participants with scenarios involving self-threat and control scenarios. For each scenario, participants rated how helpful it would be to engage in self-affirmation compared to an alternative, ineffective strategy. After the assessment, participants were presented with Cyberball (Williams et al., 2000), where some participants faced a threat by being excluded during the game. Finally, participants completed a measure of ostracism recovery. Replicating past research, we found that participants recognized that self-affirmation would be more helpful for self-threat scenarios compared to control condition scenarios. The patterns of results appeared to suggest that individual differences in self-affirmation beliefs might buffer people from self-threat, although the findings were not statistically significant. Future studies may address the limitations of the current work by examining everyday experiences of self-threat.

Keywords: self-affirmation, values affirmation, social exclusion, ostracism recovery

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Introduction

Self-threats—such as receiving alarming medical test results, or being rejected from a highly-desired job—are disappointing yet common experiences that can undermine one's positive self-views and sense of self-integrity. Self-affirmation—the act of reflecting on a source of self-worth to restore one's self-integrity—has been shown to help people cope with self-threats in a variety of domains, such as health (Reed & Aspinwall, 1998; Sherman & Cohen, 2000), academic performance (Cohen et al., 2006; Cohen et al., 2009; Sherman et al., 2013; Brady et al., 2016), and social settings (Hales et al., 2016). Despite the previously researched benefits of self-affirmation for mitigating self-threat, not much is known about whether people recognize when and how to engage in self-affirmation. The study at hand examines people's beliefs about the benefits of self-affirmation, and examines whether these beliefs may buffer people against an experience of self-threat.

Self-Affirmation Theory

Research demonstrates that self-affirmation is an effective way to respond to self-threats (Sherman & Cohen, 2006). For example, research demonstrates that self-affirmation can promote greater acceptance of threatening health information (Sherman et al., 2000). Specifically, past research presented participants with an article outlining adverse health effects about caffeine consumption- which was threatening to some participants (caffeine drinkers), but not to others (non-caffeine drinkers). Caffeine drinkers in the self-affirmation condition were asked to reflect on their *most* important values, which made them more likely to accept the threatening health information in the article and report stronger intentions to drink less caffeine compared to caffeine drinkers in the control condition who reflected on their *least* important values. Participants experienced lasting effects of self-affirmation a week after the experiment, recalling

less information that minimized the negative impact of caffeine and more information that highlighted the risk of frequent consumption of caffeinated beverages.

In addition to promoting acceptance of threatening health information, engaging in self-affirmation has been an effective strategy in promoting academic achievement among students facing self-threats in the form of negative stereotypes. For example, Cohen et al. (2009) implemented an intervention to bolster academic performance in Black students who faced negative academic stereotypes at school. In this experiment, Black students who engaged in self-affirmation (compared to a control condition) achieved higher grade point averages (GPA). Additionally, the amount of students who repeated a grade decreased from 18% to 5%.

Self-affirmation has additionally been shown to buffer people from negative effects of social exclusion (Hales et al., 2016)— a threat to one's self-esteem via a reduced sense of social belonging. (Williams, 2009). In this study, participants were randomly assigned to experience social exclusion or inclusion through an online ball-tossing game called Cyberball (Williams, Cheung, & Choi, 2000)—a well-validated ostracism paradigm (effect sizes ranging from 1.0-2.0, according to Williams & Jarvis, 2006).In this game participants play with two other "players" (i.e. computer generated animations). Whereas participants in the inclusion condition get to receive and throw the ball to the other players, participants in the exclusion condition nearly never receive the ball during the game. After Cyberball, participants reported their feelings. As expected, socially excluded participants felt worse (e.g., lower self-esteem, lower belonging) than included participants. Next, as an intervention, participants in the self-affirmation condition wrote about personally important values, whereas participants in the control condition simply wrote about their current thoughts. After the intervention, participants reported their feelings again. Among those who were socially excluded, participants in the self-affirmation intervention

felt better compared to participants in the control condition. Additionally, socially excluded participants felt better after the self-affirmation intervention than they did before, demonstrating that writing about personally important values promoted recovery after the self-threat of social exclusion.

Beliefs About Self-Affirmation

Although past research demonstrated that self-affirmation can mitigate the effects of self-threat in social, educational, and health domains, much of the past work manipulated whether or not people affirmed themselves by reflecting on personally important values. Research has begun to address this by examining individual differences in people's tendencies to engage in spontaneous self-affirmation (e.g., Harris et al., 2019). This work demonstrates that some individuals may respond to threats with self-affirming strategies, and that constructs such as positive self-thought and trait self-esteem may be related to individual differences in spontaneous self-affirmation. However, this work does not directly examine the extent to which people recognize when and how to engage in self-affirmation on their own. Inspired by the metamotivational approach (e.g., Scholer & Miele, 2016; Scholer et al., 2018), recent research thus examined people's beliefs about the benefits of self-affirmation (Reeves et al., 2020).

To examine beliefs about self-affirmation, Reeves et al. (2020) presented participants with an assessment describing various scenarios that involved self-threat vs. did not involve self-threat and asked participants to rate how effective it would be to engage in self-affirmation compared to alternative strategies in each of the scenarios. Overall, they found that people have relatively accurate beliefs about the benefits of self-affirmation for coping with self-threat. Specifically, Reeves et al. (2020) found that people, on average, have accurate situation differentiation beliefs: people recognized that self-affirmation is more helpful for self-threat

situations rather than negative control situations. They also found that , on average, people did not recognize that self-affirmation would be more helpful that an ineffective, alternate strategy (recounting) for coping with self-threat.

Reeves et al. (2020) also explored whether individual differences in people's beliefs about the benefits of self-affirmation predicted *choice* to self-affirm in response to a self-threat. Indeed, Reeves et al. (2020) found that those who recognized the benefits of self-affirmation were more likely to choose to engage in self-affirmation over an alternative strategy after self-threat. The results from this study provide initial evidence for the notion that beliefs about self-affirmation may assist people in choosing how to cope with a self-threat. However, in the research conducted by Reeves et al. (2020), the self-threat paradigm involved writing about an experience in the *past* when a close other outperformed them. Additionally, Reeves et al. (2020) focused on examining choices, rather outcomes. No research to date has examined whether people's beliefs about self-affirmation may buffer them from a *current* experience of self-threat or examined the outcomes of having accurate self-affirmation beliefs. Examining this can shed light on the downstream consequences of self-affirmation beliefs.

The Present Research

This study examined had two aims. First, this research examined whether people recognize the benefits of self-affirmation—attempting to replicate Reeves et al. (2020). Second, this study sought to examine if individual differences in people's beliefs about the benefits of self-affirmation can serve as a protective buffer when facing a current experience of self-threat, allowing us to examine the outcomes of these beliefs. To manipulate self-threat, we randomly assigned participants to experience social exclusion or social inclusion. Among those who experienced the self-threat of social exclusion, we examined whether people who recognize the

benefits of self-affirmation would feel better than those who do not recognize the benefits of self-affirmation. In addition to this, we explored how those who understand the benefits of self-affirmation felt after being socially excluded versus included.

Method

Participants

This study recruited 314 participants (M_{age} = 18.85, SD_{age} = 1.68, 74.8% White, 60.8% female) through the Research Experience Program (REP) in exchange for course credit. The study was conducted entirely online in Qualtrics.

Procedure & Materials

Self-affirmation beliefs assessment. Participants first filled out an assessment that measured their beliefs about the usefulness of engaging in self-affirmation (vs. an alternative strategy) in the presence vs. absence of a self-threat (Reeves et al., 2020). This assessment compared self-affirmation to the alternative strategy of recounting, because past research suggests that recounting is an ineffective strategy for coping with negative emotional events such as social rejection (Kross & Ayduk, 2008; Ayduk & Kross, 2010).

We first told participants that people can use different strategies to deal with difficult situations. We described self-affirmation as the "values reflection strategy," which involves reflecting on one's most important personal values. We also described recounting as the "recounting strategy," which involves analyzing and reflecting on details of an event. The order in which these two strategies were presented to the participant was counterbalanced.

Participants were then presented with 16 scenarios: eight scenarios that involved self-threat and eight control condition scenarios about negative events that did not involve self-threat. An example of self-threat scenario read: "Imagine you are a heavy coffee drinker. You have just

learned that caffeine consumption can increase the risk of developing certain types of cancer. You think of yourself as healthy person and you find this information distressing. You are tempted to ignore the information and downplay the risk." An example control condition scenario read: "Imagine that you woke up this morning with your back really sore and stiff. It hurts badly enough that it's a little hard to move. Just turning over to your side is difficult and painful. You've managed to make an appointment with your doctors and you now have to get to their office. Imagine that your goal is to figure out how to deal with this." For each scenario, participants rated the usefulness of the values reflection strategy (i.e., to think about one's most important values; 1 = *extremely unhelpful*, 7 = *extremely helpful)* and the usefulness of the recounting strategy (i.e., analyzing and reflecting on the details of the situation; 1 = *extremely unhelpful*, 7 = *extremely helpful*). In addition to this, there was an attention check within the self-affirmation knowledge assessment that stated, "Please select "Somewhat unhelpful" to ensure that you are paying attention."

Additional measures. Following this, participants completed three scales for exploratory purposes. First, participants filled out the Spontaneous Self-Affirmation Scale (Harris et al., 2019) – a measure assessing the extent to which people use self-affirmation spontaneously when faced with threat. An example of a question on the scale is: "When I feel threatened or anxious by people or events, I find myself thinking about my values." (1 = *strongly disagree*, 7 = *strongly agree*). Next, participants completed the eudaimonic well-being scale (Nelson et. al, 2014), which assesses the extent to which participants are living in pursuit of a fulfilling life. Participants indicated the extent to which they felt eudaimonic well-being in the last week (e.g., "I felt that my choices were based on my true interests and values"; 1 = *not at all, 7 = very much).* Within the eudaimonic well-being scale, there was an attention check that stated,

"Please check "3" if you are currently paying attention." Next, we measured hedonic wellbeing—the extent to which participants experience positive and negative affect—using the Modified Differential Emotions Scale (Nelson et. al, 2014). This measure is a 23-item scale that assesses how often participants have felt positive and negative emotions within the last week (e.g., "I have felt amused, fun-loving, silly"; *0 = never, 4 = most of the time).* Given the exploratory nature of these measures, they are not included in the results section of this thesis. However, the attention check was used in a filter variable in analyses that excluded participants who did not select the correct answer.

Self-threat manipulation (Cyberball). Participants were randomly assigned to experience self-threat vs. no self-threat through the Cyberball paradigm (Wesselmann & Williams, 2009; Williams, Cheung, & Choi, 2000). As in past research (Hales et al., 2016; Williams et al., 2000), we presented Cyberball as an online, interactive ball-tossing game for practicing mental visualization skills and told participants that they would be randomly paired with two other players. In reality, these players were computers that were programmed to throw the ball in a certain sequence, depending on condition. In the exclusion condition (i.e., self-threat condition), participants received the ball twice at the beginning of the game and then were not included in the rest of the ball throws (Hales et al., 2016). By contrast, in the inclusion condition (i.e., no self-threat condition), participants received the ball an equal number of times as the two players. The game lasted approximately two minutes with 30 throws total.

Post-threat writing exercise. After the Cyberball game, participants were asked to write a few sentences about their current thoughts. Specifically, the prompt read: "People think about different things from moment to moment. Please take a moment to notice what you are thinking about right now." This writing exercise was used in the control condition in Hales et al. (2016)

and gave participants the opportunity to write what they were thinking about. In the current experiment, it was a filler measure that created distance between the self-threat experience and the measurement of the primary outcome variables.

Feelings after Cyberball. To assess how participants felt after Cyberball, we administered the reflective questionnaire, as in previous research on self-affirmation and social exclusion (Hales et al., 2016). This questionnaire contained the following subscales: belonging ("I feel like I belong to a group"), self-esteem ("I feel good about myself"), meaningful existence ("I feel important"), control ("I feel powerful"), and certainty ("I feel confident about who I am"). For all items, participants rated the extent to which they feel that way right now (1 = *not at all*, 5 = *extremely*). These items were averaged together to create a composite measure ($\alpha = .95$). Participants also reported their positive affect (good, friendly, pleasant, happy; $\alpha = .90$) and negative affect (bad, unfriendly, angry, sad; $\alpha = .82$; 1 = *not at all*, 5 = *extremely*). Affect will not be included in the results section, as it was not part of the composite measure used in past work (Hales et al., 2016).

Manipulation check and Cyberball checks. As a manipulation check, we asked participants to rate the extent to which they felt ignored during the game and excluded during the game (1 = *not at all*, 5 = *extremely*; Hales et al., 2016). These two items were averaged together, $r(240) = .76$. To assess suspicion, we asked participants if they knew what the study was about and if they thought there was more to study than met the eye. To assess their experience with Cyberball, we asked participants if they had previously heard of Cyberball, and if they experienced any technical difficulties during the game.

Final questions. Finally, participants reported how much they paid attention during the survey (i.e., how distracted they were while filling out the survey and how seriously they filled

out the questionnaire; 1 = *not at all*, 5 = *extremely*). Participants then completed a set of demographic questions that asked their age, gender, year in school, race/ethnicity, English proficiency, parents' education level, self-assessed social class, household size, and political ideology. Afterward, participants were fully debriefed and informed about the deception in Cyberball, and thanked for their time.

Results

Exclusion Criteria

Using standard lab data cleaning procedures for online data quality, we excluded participants who failed either of the attention checks (n = 42), reported that they did not pay attention (n = 13), reported suspicion of the study (n = 24; for example, reported suspicion that the other players in the Cyberball game were not real), and reported familiarity with Cyberball (n = 1). As a result of these exclusions, this study had a final N = 240.

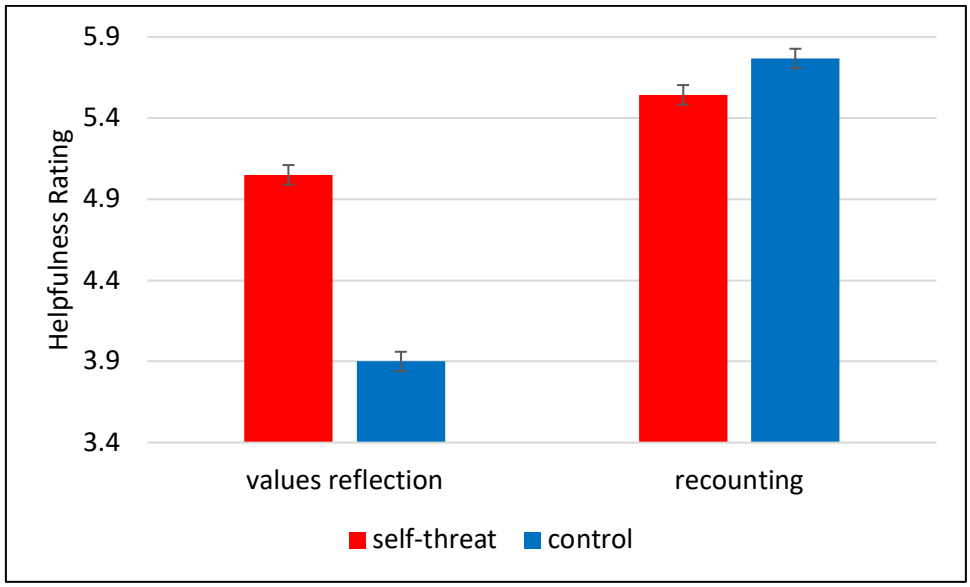
Beliefs About the Benefits of Self-Affirmation

To examine participants' beliefs about the benefits of self-affirmation, we submitted their usefulness ratings from the beliefs assessment to a 2 (scenario: self-threat vs. control) x 2 (strategy: values reflection vs. recounting) x 2 (strategy order: values reflection first vs. recounting first) mixed ANOVA with strategy order as a between-subjects factor. There was a significant main effect of scenario, $F(1, 238) = 103.44$, $p > .001$, $\eta p^2 = .30$. In general, participants gave higher usefulness ratings for self-threat scenarios (M = 5.30, SD = .57) than control scenarios (M = 4.83, SD = .64). There was also a significant main effect of strategy, $F(1, 238) = 328.63$, $p > .001$, $\eta p^2 = .58$. Generally, participants gave higher usefulness ratings for the recounting strategy (M = 5.65, SD =.66) than the values-affirmation strategy (M = 4.47, SD = .76). Consistent with previous research, there was a significant interaction between scenario and

strategy, $F(1, 238) = 151.58$, $p > .001$, $\eta p^2 = .39$ (see Figure 1). Strategy order did not moderate any main effects of interactions, p's > .37.

Figure 1

Self-Affirmation Beliefs Assessment



Note: Average usefulness ratings for the values reflection strategy and recounting strategy in self-threat scenarios and control condition scenarios.

To examine the interaction between scenario and strategy, we conducted follow-up analyses using paired samples t-tests. First, we examined the interaction as a function of strategy. Participants rated that the values reflection strategy would be more helpful in the self-threat scenarios ($M = 5.05$, $SD = .90$) than in control condition scenarios ($M = 3.90$, $SD = 1.11$), $t(239) = 13.38$, $p < .001$. This suggests that participants on average have accurate situation differentiation beliefs—replicating Reeves et al. (2020). Participants also rated that the recounting strategy would be helpful in control condition scenarios ($M = 5.78$, $SD = .85$) than in self-threat scenarios ($M = 5.54$, $SD = .72$), $t(239) = 4.08$, $p < .001$. Second, we examined the interaction as a function of scenario. In the self-threat scenarios, participants rated the recounting

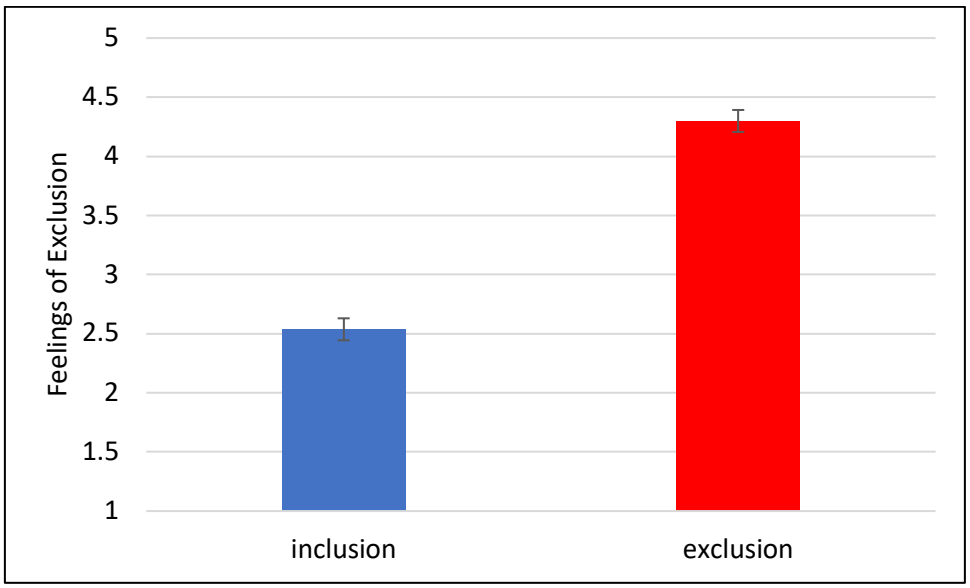
strategy (M = 5.44, SD = .72) as more helpful than the values reflection strategy (M = 5.05, SD = .90), $t(239) = 6.52$, $p < .001$. This indicates that participants on average have inaccurate comparative efficacy beliefs, consistent with findings from Reeves et al. (2020). In the control scenarios, participants also rated the recounting strategy (M = 5.77, SD = .85) as more helpful than the values reflection strategy (M = 3.90, SD = 1.11), $t(239) = 19.38$, $p < .001$. Overall, this pattern of results generally replicated past research (Reeves et al., 2020), and suggests that participants recognize some of the benefits of self-affirmation.

Cyberball: Social Exclusion Manipulation Check

Next, we examined whether participants in the social exclusion condition of Cyberball felt more excluded than those in the social inclusion condition. Indeed, those in the social exclusion condition (M = 4.299, SD = .924) reported significantly higher levels of exclusion than those in the social inclusion condition (M = 2.537, SD = 1.039), $t(239) = 13.865$, $p < .001$ (see Figure 2).

Figure 2

Feelings of Exclusion Following Cyberball



Do self-affirmation beliefs predict participants' feelings after Cyberball?

Next, we examined whether participants' self-affirmation beliefs predict how they felt after Cyberball. To do so, we first created two measures of participants' beliefs about self-affirmation. Specifically, we created a measure of participants' situation differentiation beliefs (usefulness rating for self-affirmation in self-threat scenarios – usefulness rating for self-affirmation in control condition scenarios; M = 1.156, SD =1.338). We also created a measure of participants' comparative efficacy beliefs (usefulness rating for self-affirmation in self-threat scenarios – usefulness rating for recounting in the self-threat scenarios; M = -.493, SD = 1.171). We conducted two sets of analyses: one with situation differentiation beliefs, and one with comparative efficacy beliefs. These beliefs did not differ across Cyberball conditions, p's > .78.

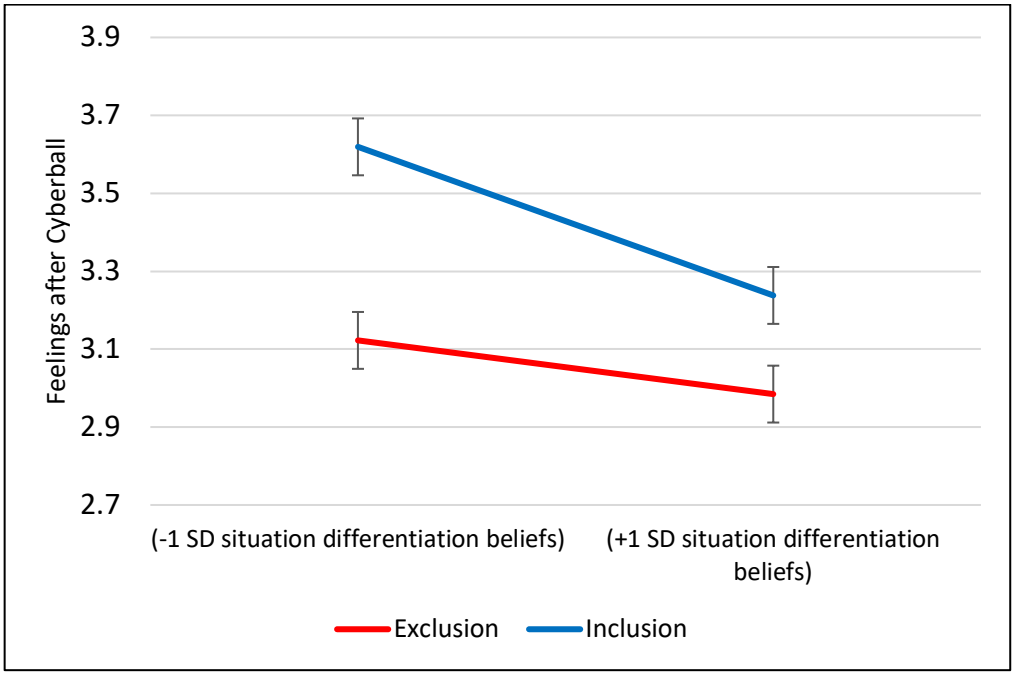
Situation Differentiation Beliefs

Feelings after Cyberball. We regressed participants' feelings after Cyberball on Cyberball condition (-0.5 = exclusion, 0.5 = inclusion), means-centered situation differentiation

beliefs, and the interaction between Cyberball condition and situation differentiation beliefs. There was a significant effect of Cyberball condition, b = .38, SE = .10, $t(239)$ = 3.86, p = .008. Participants in the inclusion condition felt better than those in the exclusion condition. Unexpectedly, results also revealed that situation differentiation beliefs predicted worse feelings following Cyberball– b = -.10, SE = .04, $t(239)$ = -2.66, p = .008 – such that participants with higher situation differentiation beliefs felt worse than those with lower situation differentiation beliefs. There was no significant interaction between condition and situation differentiation beliefs, b = -.09, SE = .07, $t(239)$ = -1.25, p = .213 (see Figure 3).

Figure 3

Interaction Between Condition and Situation Differentiation Beliefs on Feelings after Cyberball



Note: Effect of Cyberball condition and situation differentiation beliefs on feelings after Cyberball. Error bars represent +/-1 SE.

Although the interaction was not significant, we conducted focused analyses to understand the pattern of results. First, we examined this interaction as a function of beliefs. Among those with high (+1 *SD* from the mean) situation differentiation beliefs, participants in

the inclusion condition felt marginally better than those in the exclusion condition, $b = .25$, $SE = .14$, $t(239) = 1.84$, $p = .067$. By contrast, among those with low (-1 *SD* from the mean) situation differentiation beliefs, participants in the inclusion condition felt significantly better than those in the exclusion condition, $b = .50$, $SE = .14$, $t(239) = 3.61$, $p < .001$. These findings indicate that the effect of exclusion (a self-threat encountered in Cyberball), compared to inclusion (no self-threat encountered in Cyberball) on feelings was weaker among those who recognized the benefits of self-affirmation (+1 *SD* beliefs) compared to those who did not recognize these benefits (-1 *SD*). These results are promising in the sense that they suggest that self-affirmation beliefs might buffer people from self-threats.

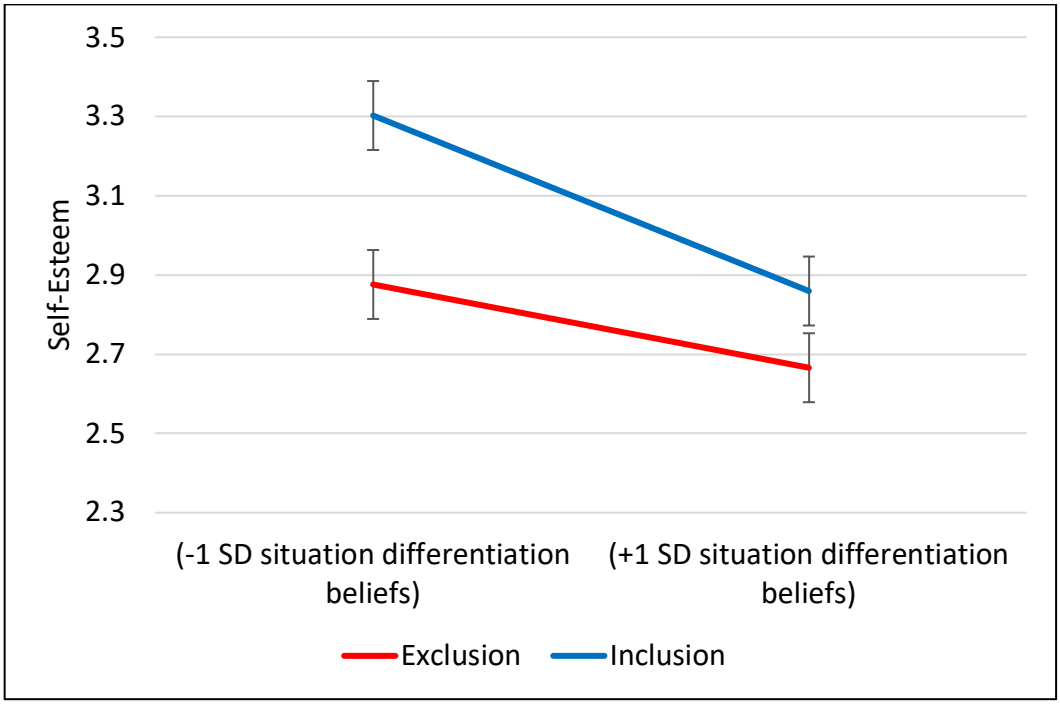
Next, we examined this interaction as a function of Cyberball condition. For those socially excluded in the Cyberball game, situation differentiation beliefs did not significantly predict participants' feelings, $b = -.05$, $SE = .05$, $t(239) = -0.98$, $p = .330$. For those included in Cyberball, situation differentiation beliefs unexpectedly predicted worse feelings after Cyberball, $b = -.14$, $SE = .05$, $t(239) = -2.83$, $p = .005$. Surprisingly, these results suggest that individuals who recognize the benefits of self-affirmation (+1 *SD*) might feel worse in the inclusion condition than those who do not recognize the benefits of self-affirmation beliefs (-1 *SD*). Although the interaction is not significant, looking at patterns within the interaction suggests that situation differentiation beliefs might possibly buffer people from self-threat.

Self-esteem. We also focused analyses on the self-esteem subscale ($\alpha = .87$), given the relevance of this measure to research on self-affirmation. We regressed self-esteem on condition (-0.5 = exclusion, 0.5 = inclusion), means-centered situation differentiation beliefs, and the interaction between the two. There was a significant effect of Cyberball condition on self-esteem, $b = .31$, $SE = .12$, $t(239) = 2.66$, $p = .008$, with those in the inclusion condition reporting

higher self-esteem than those in the exclusion condition. Results also revealed that situation differentiation beliefs negatively predicted self-esteem, b = -.12, SE = .04, $t(239)$ = -2.80, p = .006, with those who recognized the benefits of self-affirmation (+1 *SD* situation differentiation beliefs) reporting lower self-esteem than those with did not (-1 *SD* situation differentiation beliefs). There was no significant interaction between condition and situation differentiation beliefs, b = -.09, SE = .09, $t(239)$ = -1.00, p = .321 (see Figure 4).

Figure 4

Interaction Between Condition and Situation Differentiation Beliefs on Self-Esteem



Note: Effect of Cyberball condition and situation differentiation beliefs on self-esteem after Cyberball. Error bars represent +/-1 SE.

As before, although the interaction was not significant, we conducted focused analyses to understand the pattern of results. First, we examined this interaction as a function of beliefs. Among those with high (+1 *SD* from the mean) situation differentiation beliefs, the effect of Cyberball condition on self-esteem was not significant, b = .19, SE = .17, $t(239)$ = 1.17, p = .242.

By contrast, among those with low (-1 *SD* from the mean) situation differentiation beliefs, there was a significant effect of Cyberball condition on self-esteem, $b = .43$, $SE = .17$, $t(239) = 2.58$, $p = .01$. These results suggest that the effect of exclusion (i.e., self-threat in Cyberball) compared to inclusion (i.e., no self-threat experienced in Cyberball) on self-esteem was significantly weaker among those who recognized the benefits of self-affirmation (+1 *SD*), in contrast to those who did not recognize these benefits (-1 *SD*). In line with the results seen for participants' overall feelings after Cyberball, this suggests that self-affirmation beliefs might buffer people from experiences of self-threat.

Next, we examined this interaction as a function of Cyberball condition. For those socially excluded in the Cyberball game, situation differentiation beliefs did not significantly predict self-esteem, $b = -.08$, $SE = .06$, $t(239) = -1.25$, $p = .21$. For those included in Cyberball, there was a negative effect of situation differentiation beliefs on self-esteem, $b = -.17$, $SE = .06$, $t(239) = -2.74$, $p = .007$. These results indicate that situation differentiation beliefs negatively predicted self-esteem- especially for those in the inclusion condition. Although the interaction is not significant, the pattern of these findings suggests that situation differentiation beliefs could serve as a buffer from self-threat.

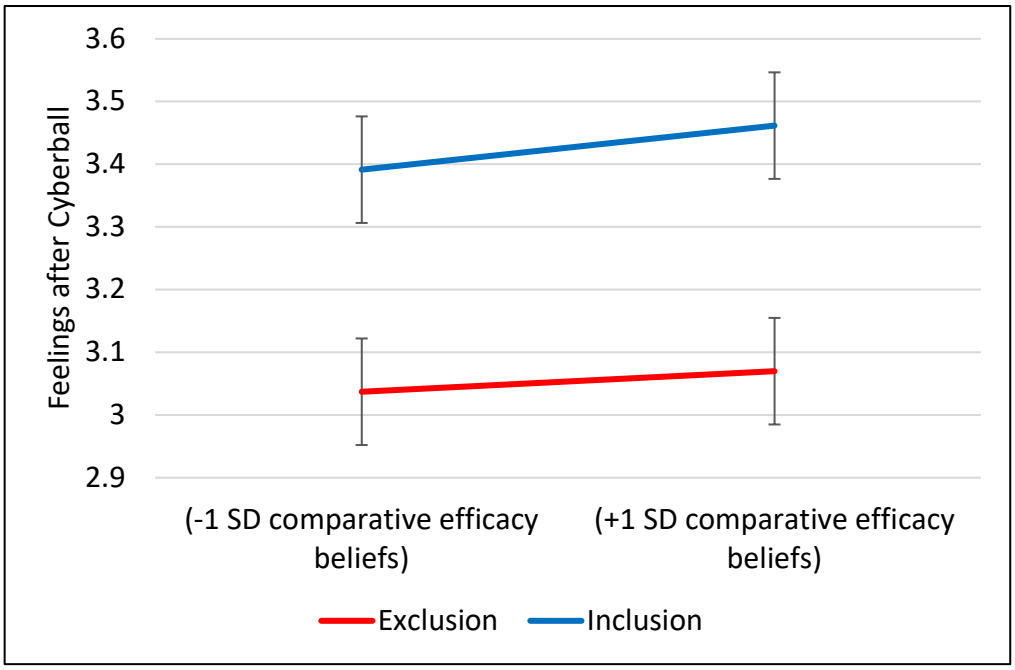
Comparative Efficacy Beliefs

Next, we regressed feelings after Cyberball on Cyberball condition (-0.5 = exclusion, 0.5 = inclusion), means-centered comparative efficacy beliefs, and the interaction between the two. There was a significant effect of Cyberball condition, $b = .37$, $SE = .10$, $t(239) = 3.76$, $p < .001$, This indicated that those in the inclusion condition generally felt better than those in the exclusion condition. Comparative efficacy beliefs did not significantly predict feelings after Cyberball, $b = .02$, $SE = .04$, $t(239) = .51$, $p = .611$. There was no significant interaction between

condition and comparative efficacy beliefs, $b = .02$, $SE = .09$, $t(239) = .189$, $p = .85$ (see Figure 5).

Figure 5

Interaction Between Condition and Comparative Efficacy Beliefs on Feelings after Cyberball

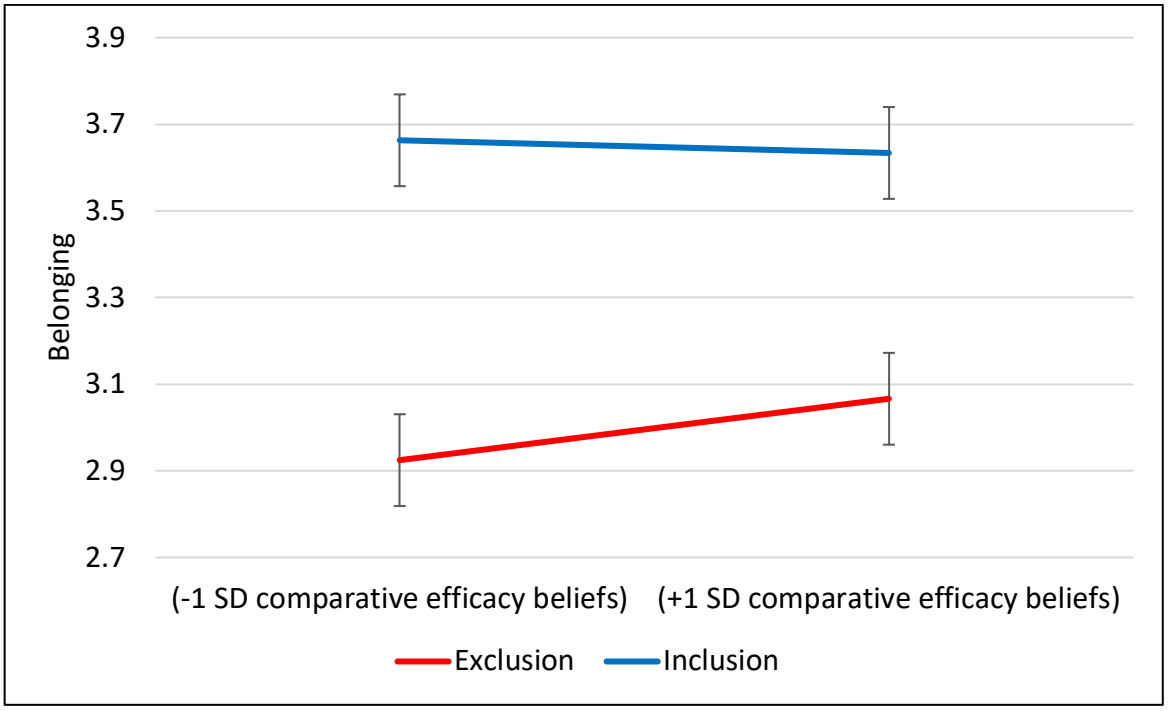


Note: Effect of Cyberball condition and comparative efficacy beliefs on feelings after Cyberball. Error bars represent +/-1 SE.

As in the previous section, we conducted focused analyses on the self-esteem subscale. We regressed self-esteem on Cyberball condition (-0.5 = exclusion, 0.5 = inclusion), means-centered comparative efficacy beliefs, and the interaction between the two. There was a significant effect of the condition, $b = .17$, $SE = .12$, $t(239) = 2.619$, $p = .01$, but not of comparative efficacy beliefs, $b = .12$, $SE = .10$, $t(239) = 2.62$, $p = .90$. There was no significant interaction between condition and comparative efficacy beliefs, $b = .121$, $SE = .09$, $t(239) = .228$, $p = .82$ (see Figure 6).

Figure 6

Interaction Between Condition and Comparative Efficacy Beliefs on Self-Esteem



Note: Effect of Cyberball condition and comparative efficacy beliefs on self-esteem after Cyberball. Error bars represent +/-1 SE.

Discussion

As evidenced in this study, people generally recognized the benefits of self-affirmation for navigating self-threatening situations. As in past research, we examined two different types of beliefs about self-affirmation. We found that people have accurate situation differentiation beliefs—people recognized the helpfulness of self-affirmation in self-threat situations, compared to other types of negative situations (e.g., managing physical pain). By contrast, we saw that, on average, people had inaccurate comparative efficacy beliefs. They rated recounting as a more helpful strategy than self-affirmation for dealing with self-threats, although past research has shown that recounting is an ineffective coping strategy. Overall, these findings replicated Reeves et al. (2020).

The current study sought to examine whether individual differences in beliefs about self-affirmation might buffer the negative effects of the self-threat of social exclusion. Replicating past research on social exclusion, we found that people who were excluded from the Cyberball game felt worse (e.g., less belonging, lower self-esteem) than those who were included. The pattern of results appeared to suggest some hints that individual differences in situation differentiation beliefs (self-affirming in response to a self-threat vs. control situation) might buffer the negative effects of social exclusion, although the findings were not statistically significant.

One potential explanation for situation differentiation predicting participants' responses to Cyberball, rather than comparative efficacy beliefs might be the extent to which participants actually engaged in self-affirmation. Comparative efficacy beliefs examined the extent to which participants find self-affirmation more helpful than recounting for self-threat situations. On average, there was no significant difference between participants' perceived usefulness of the values reflection strategy and the recounting strategy—so it may be that few participants actually engaged in self-affirmation through values reflection. Conversely, situation differentiation beliefs capture the extent to which people recognized a scenario as a self-threat, enough to warrant finding self-affirmation more helpful than in a control situation. Ultimately, recognizing specific situations as self-threats may have been beneficial for coping.

Limitations

One limitation of this study is that we did not measure changes in participants' feelings after Cyberball. In previous studies that have looked at self-affirmation and ostracism recovery (Hales et al., 2016), participants reported their feelings immediately after playing Cyberball and once again after a self-affirmation manipulation. Given that people may vary in the extent to

which Cyberball impacts their feelings, changes in such feelings may be a more sensitive outcome measure, whereas measuring feelings once may not be sufficient.

Another limitation of this study is that participants' beliefs about self-affirmation were assessed in the same session in which we manipulated whether they experienced a self-threat. Because all participants were presented with the self-affirmation strategy in the assessment, values may have been salient for all participants—not only for those who recognized the benefits of self-affirmation. Although the current study included filler measures to put distance between the self-affirmation beliefs assessment and threat manipulation, there may not have been enough time between these two measures. This could have made it difficult for differences to be seen between participants who had accurate vs. inaccurate self-affirmation beliefs.

Yet another limitation is that the manipulation of self-threat through social exclusion may have been too powerful in the context of current events. This study was conducted during the COVID-19 pandemic, in which people were required to socially distance themselves from others, potentially making them feel socially excluded prior to the study. The self-threat manipulation may have been too strong for all participants—regardless of whether they did or did not recognize the benefits of self-affirmation.

Future Directions

Future studies assessing whether individual differences in self-affirmation beliefs buffer people from a self-threat may implement a multi-part experimental design, with the beliefs assessment in the first session, the self-threat manipulation in the second session, and outcomes in the final session. It is possible that with more time after the self-threat, participants may be more likely to use self-affirmation as an coping strategy. Given that participants may believe that self-affirmation is only one of many coping strategies (as evidenced by their comparative

efficacy beliefs), providing more time after self-threat could help participants try different coping strategies. Similarly, future research may also adopt a daily diary study design that examines how beliefs might help individuals cope with everyday threats. This kind of design can address many of the limitations listed above and has the potential to measure changes in coping over time. Specifically, this would be a worthy future direction because it allows researchers the possibility of measuring self-affirmation beliefs separately from experiences of self-threat, and may provide realistic everyday experiences that participants might be able to respond to more naturally than Cyberball.

If beliefs about when to use self-affirmation are helpful in coping with instances of self-threat, future research may examine related downstream consequences. For example, past research suggests that academic performance can differ as a function of stereotype threat (Johnson-Ahorlu, 2013; Sherman et al., 2013). Future research may examine whether self-affirmation beliefs may explain differences in academic performance. If so, developing interventions that builds this knowledge in students might be beneficial. For example, these interventions may teach students how to identify potential self-threats in the context of school, such as getting a bad grade on an exam or feeling a lack of belonging. Additionally, interventions that develop people's self-affirmation beliefs may target vulnerable populations, such as historically marginalized students at primarily white institutions. These interventions may empower such individuals with tools to overcome common experiences of stereotype threats that might be faced in this setting. Developing students' beliefs may help them cope with threat, which may in turn promote academic performance among these students.

Interventions that develop people's beliefs about self-affirmation may also aim to promote openness to potential sources of self-threatening information. For example, research

suggests that white people may view diversity, equity, and inclusion initiatives as self-threatening. Specifically, white individuals may experience self-threat when diversity initiatives do not include them, or may even call attention to problematic behaviors they might not have seen as problematic. These experiences of threat lead them to be less open to information about existing inequalities in the workplace or to react with defensiveness that hinders the implementation of diversity initiatives in the workplace (Dover, Major, & Kaiser, 2016; Onyeador et al., 2021). Current implicit bias trainings that attempt to address these issues are not always effective (Onyeador et al., 2021), and even in trainings that were seen as effective, there were no meaningful changes in behavior or explicit bias (Forscher et al., 2019). Given that self-affirmation has the potential to promote openness to self-threatening information and create long-lasting behavioral changes (e.g., Reed & Aspinwall, 1998; Sherman et al., 2000), interventions that teach people when and how to engage in self-affirmation may be useful for supporting workplace diversity efforts. Given the importance of knowing when and how to self-affirm, it is important for future interventions to target peoples' beliefs concerning self-affirmation to create long-lasting change. For this to be possible, there must also be assessments in these interventions that periodically examine individuals' self-affirmation beliefs to assess any change. Given this, interventions in the area of workplace diversity that target self-affirmation beliefs (and subsequent change) may lead white people to be less defensive about diversity, equity, and inclusion policies and more willing to change in support of these policies.

In sum, examining the consequences of individuals' beliefs about the benefits of self-affirmation may be a worthy next step for self-affirmation research. Self-affirmation beliefs may be an important target for future interventions, to the extent that they can buffer people from self-threat and its negative consequences. These interventions may in turn create long-lasting and

meaningful impact by equipping individuals with tools for not only overcoming self-threats but employing behavioral change.

References

Ayduk, Ö., & Kross, E. (2010). From a distance: implications of spontaneous self-distancing for adaptive self-reflection. *Journal of Personality and Social Psychology*, *98*(5), 809-829.

Brady, S. T., Reeves, S. L., Garcia, J., Purdie-Vaughns, V., Cook, J. E., Taborsky-Barba, S., ... & Cohen, G. L. (2016). The psychology of the affirmed learner: Spontaneous self-affirmation in the face of stress. *Journal of Educational Psychology*, *108*(3), 353-373.

Cohen, G. L., Garcia, J., Apfel, N., & Master, A. (2006). Reducing the racial achievement gap: A social-psychological intervention. S*cience*, *313*(5791), 1307-1310.

Cohen, G. L., Garcia J., Purdie-Vaughns, V., Apfel, N., & Brzustoski, P., (2009). Recursive Processes in self-affirmation: Intervening to close the minority achievement gap. *Science,* 324(5925), 400-403.

Dover, T. L., Major, B., & Kaiser, C. R. (2016). Members of high-status groups are threatened by pro-diversity organizational messages. *Journal of Experimental Social Psychology*, *62*, 58-67.

Forscher, P. S., Lai, C. K., Axt, J. R., Ebersole, C. R., Herman, M., Devine, P. G., & Nosek, B. A. (2019). A meta-analysis of procedures to change implicit measures. *Journal of Personality and Social Psychology*, *117*(3), 522-559.

Hales, A. H., Wesselmann, E. D., & Williams, K. D. (2016). Prayer, self-affirmation, and distraction improve recovery from short-term ostracism. *Journal of Experimental Social Psychology*, *64*, 8-20.

Harris, P. R., Griffin, D. W., Napper, L. E., Bond, R., Schüz, B., Stride, C., & Brearley, I. (2019). Individual differences in self-affirmation: Distinguishing self-affirmation from positive self-regard. *Self and Identity*, *18*(6), 589-630.

Johnson-Ahorlu, R. N. (2013). "Our biggest challenge is stereotypes": Understanding stereotype threat and the academic experiences of African American undergraduates. *The Journal of Negro Education*, *82*(4), 382-392.

Kross, E., & Ayduk, O. (2008). Facilitating adaptive emotional analysis: Distinguishing distanced-analysis of depressive experiences from immersed-analysis and distraction. *Personality and Social Psychology Bulletin*, *34*(7), 924-938.

Nelson, S. K., Fuller, J. A., Choi, I., & Lyubomirsky, S. (2014). Beyond self-protection: Self-affirmation benefits hedonic and eudaimonic well-being. *Personality and Social Psychology Bulletin*, *40*(8), 998-1011.

Onyeador, I. N., Hudson, S. K. T., & Lewis Jr, N. A. (2021). Moving beyond implicit bias training: Policy insights for increasing organizational diversity. *Policy Insights from the Behavioral and Brain Sciences*, *8*(1), 19-26.

Reed, M. B., & Aspinwall, L. G. (1998). Self-affirmation reduces biased processing of health-risk information. *Motivation and Emotion*, *22*(2), 99-132.

Reeves, S. L., Nguyen, T., Scholer, A. A., Fujita, K., & Spencer, S. J. (in prep). Examining People's Beliefs About Self-Affirmation. *Manuscript in preparation for publication.*

Scholer, A. A., & Miele, D. B. (2016). The role of metamotivation in creating task-motivation fit. *Motivation Science*, *2*(3), 171-197.

Scholer, A. A., Miele, D. B., Murayama, K., & Fujita, K. (2018). New directions in self-regulation: The role of metamotivational beliefs. *Current Directions in Psychological Science*, *27*(6), 437-442.

Sherman, D. A., Nelson, L. D., & Steele, C. M. (2000). Do messages about health risks threaten the self? Increasing the acceptance of threatening health messages via self-affirmation. *Personality and Social Psychology Bulletin*, *26*(9), 1046-1058.

Sherman, D. K., & Cohen, G. L. (2006). The psychology of self-defense: Self-affirmation theory. *Advances in Experimental Social Psychology*, *38*, 183-242.

Sherman, D. K., Hartson, K. A., Binning, K. R., Purdie-Vaughns, V., Garcia, J., Taborsky-Barba, S., ... & Cohen, G. L. (2013). Deflecting the trajectory and changing the narrative: how self-affirmation affects academic performance and motivation under identity threat. *Journal of Personality and Social Psychology*, *104*(4), 591-618.

Steele, C. M. (1988). The psychology of self-affirmation: Sustaining the integrity of the self. In *Advances in Experimental Social Psychology* (Vol. 21, pp. 261-302). Academic Press.

Wesselmann, E. D., Bagg, D., & Williams, K. D. (2009). "I feel your pain": The effects of observing ostracism on the ostracism detection system. *Journal of Experimental Social Psychology*, *45*(6), 1308-1311.

Williams, K. D., Cheung, C. K., & Choi, W. (2000). Cyberostracism: effects of being ignored over the Internet. *Journal of Personality and Social Psychology*, *79*(5), 748-762.

Williams, K.D., Jarvis, B. (2006). Cyberball: A program for use in research on interpersonal ostracism and acceptance. *Behavior Research Methods* 38**,** 174–180.

Williams, K. D. (2009). Ostracism: A temporal need-threat model. *Advances in Experimental Social Psychology*, *41*, 275-314.